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THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

OFFICE OF MYCOLOGY AND DISEASE SURVEY

Vol. XIV May 1, 1930 Number 9

FRUIT DISEASES

WINTER INJURY TO APPLES

Influence of Recent Pruning

Some time ago I observed a peculiar case of winter injury in an orchard at Bentonville (Arkansas). The orchard is located on what is probably the highest ground in the vicinity of town. There is a gentle slope toward the west but in the northerly and southerly directions the land is about level. The trees are eight years old and the orchard consists of alternate blocks, four rows wide, of Grimes, Golden and Jonathan. You will note from the map (Figure 5) that severe winter injury in the forms of splitting of the bark is confined to the eastern portion of the orchard and the line of demarcation is very sharp. I have examined every tree represented on the orchard map and can vouch for the fact that the injury is confined to the area as portrayed on the map.

The orchard foreman states that pruning operations started January 1st, 1930 in the northeast corner and they completed nine rows and a portion of the tenth row before January 15. The first below zero temperature occurred the night of the 15th and there were several nights in the following week in which the temperatures dropped very low so that the pruning operations were suspended entirely until the extreme cold weather had passed. The trees in the entire block show a discolored layer of wood on the south side but the severe winter injury in which the bark is cracked for a considerable distance on the main trunk and occasionally up in the limbs is confined to the rows which were pruned two weeks before the freeze occurred and, in fact, the major portion of the injury occurs on those rows which must have been pruned within a week of the first low temperature.

There are a number of replants of different ages in this particular portion of the orchard but they do not show any cracking of the bark on the trunk. I have summarized the data on the map. There are 97 Jonathan trees in the rows that were pruned before the freeze and, of this total, 22 are split open, or a percentage of 22.7. There are 93 Grimes Golden and 40 of these trees or 43 per cent, are split open. At the extreme southern boundary of the orchard there are two Delicious trees of the same age. One of these is split open and one is not. The cracks are on the southwest side of the trees. (J. C. Dunegan, April 1)

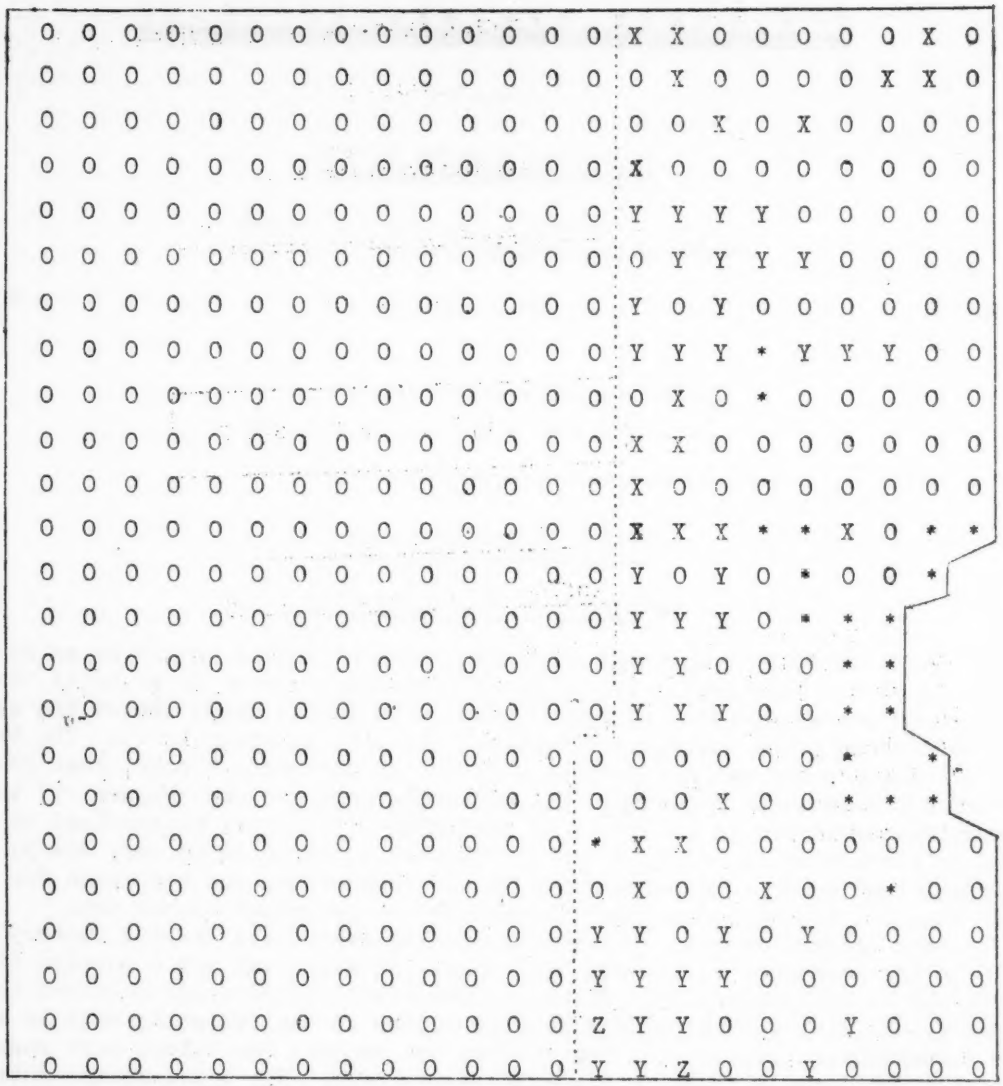

Figure 5. Winter injury in orchard at Bentonville, Arkansas - 1930. The trees east of dotted line were pruned during the period January 1-14, 1930.

Key

X - Jonathan tree, bark split on trunk.
Y - Grimes Golden, bark split on trunk.
Z - Delicious
* - Replant
  - Tree missing
O - Uninjured trees

MASSACHUSETTS REPORTS ONLY SLIGHT WINTER INJURY

There has been very little winter killing of fruit buds of the peach in the College and Station orchards located on favorable sites. Counts made March 12th indicate the percentage of killing as follows:

Elberta	20%
Greensboro and Belle	10%
Hale	25%
Champion	30%
Carman	15%

Recent inspection of an orchard in Fiskdale indicates ample live buds for a heavy bloom. (J. S. Bailey, Pomology, April 18)

APPLE SCAB SITUATION IN MASSACHUSETTS

This year, mature scab spores were reported April 3 from Essex County compared with April 6 as the earliest date in the state in 1929. On April 9, leaves from the earlier sections of Middlesex and Hampden Counties contained mature spores. In some instances, the fruit buds of such varieties as McIntosh, Baldwin, and Wealthy were just beginning to break with little or no green showing. Generally, spores are maturing and "shooting" to a considerable extent where the buds of those varieties represent the latter part of the delayed dormant spray period. At present, the early standard varieties vary in stage of bud development from buds showing one-eighth inch green to leaves three-fourths inch long, depending upon the locality.

In the past, it has been observed that in only two years out of ten has there been a need for a pre-pink spray for apple scab. This year, indications are that the pre-pink will be needed in all parts of the state. A few growers are even trying Bordeaux and lime-sulphur in the delayed dormant spray this year for scab.

Spray information service is being furnished this year through two radio broadcasting stations, in addition to special letters and phone calls to county agents. (O. C. Boyd, April 21)

MORE NOTES ON APPLE SCAB FUNGUS

New York: Counts of 300 perithecia on McIntosh leaves collected at Ithaca on April 20 showed an increase to 73 per cent in the percentage of perithecia containing some colored spores. About 19 per cent of the perithecia now contain colored ascospores in less than half of their asci while in 54 per cent of the perithecia over half of their ascospores are deeply colored.

Samples of McIntosh leaves collected April 17 near Lake Ontario in Wayne County showed 10 per cent or more of the spores colored in 63 per cent of the 200 perithecia examined. An additional 20 per cent of the perithecia showed less than 10 per cent of their ascospores colored.

Perithecia on Baldwin leaves collected on the same date in the same orchard were very sparse and counts were only obtained of 100 perithecia after many mounts were made. Of these 100, 14 contained less than 10 per cent colored spores and there were only 3 with over 10 per cent of their ascospores colored. Only a few immature perithecia were found in a Rhode Island Greening sample collected on the same date and location.

These counts are too few in number to be conclusive but indicate that abundant mature ascospore material is present in the Lake counties in McIntosh leaves while the situation in Baldwin and Rhode Island Greening is more uncertain. (W. D. Mills, April 20)

Maryland:

Eastern Shore

March 14 - Asci differentiated, contents beginning to become granular.
March 19-22 - Asci well differentiated, contents very granular, with evidences of spore formation.
March 29 - Ripe ascospores in advanced perithecia.
April 3 - Discharge of ascospores from advanced perithecia.

Western Shore

March 27-29 - Asci well differentiated, contents very granular with evidences of spore formation.
April 9 - Ripe ascospores in advanced perithecia.

Stage of trees at time of spore discharge early prepink. Ascospore discharge eight days earlier than in 1929. R. A. Jehle, April 15)

Georgia: During early March in some of the apple orchards in Habersham and Rabun Counties, I found mature Venturia inaequalis perithecia on most of the dead leaves. (J. H. Miller, April 12)

APPLE BLACK ROT - GEORGIA

During early March, I worked over some of the apple orchards in Habersham and Rabun Counties, Georgia, and found that most of the dead limbs or whole trees were heavily infected with the conidia of Physalospora cydoniae. This probably accounts for the great amount of frog-eye leaf spot normal in that region. (J. H. Miller, April 12)

PEACH BROWN ROT - GEORGIA

This spring has been rather dry and I have found cups of Sclerotinia cinerea in much less quantity than usual. There shouldn't be so much brown rot this summer. (J. H. Miller, April 12)

DISEASES OF FORAGE CROPS

NEW HOST FOR PLEOSPHAERULINA BRIOSIANA

Yesterday I uncovered Pleosphaerulina briosiana on Monantha vetch which I believe is a new host for that fungus. This was on the Agricultural College experimental plants, Athens, Georgia. The infection was not particularly serious. I have also found this fungus on several species of Medicago and Trifolium. The usual host, Medicago sativa, is rather heavily infected this year, about ten per cent of the leaves, which is unusual. (J. H. Miller, April 12)

SCLEROTINIA WILT OF RED CLOVER - VIRGINIA

We have had a number of specimens of clover wilt sent in this spring. The organism concerned is Sclerotinia trifoliorum. This trouble is always in evidence in southwest Virginia during this season of the year. (S. A. Wingard, April 16)

DISEASES OF TOBACCO

TOBACCO DISEASE SURVEY

The losses from parasitic and nutritional diseases of tobacco are proving a serious handicap to many individual growers and to the industry as a whole. In an effort to determine more definitely the causes, distribution, and relative importance of these various diseases, the Plant Disease Survey is cooperating with the Office of Tobacco and Plant Nutrition, and the States in arranging for seed bed and field surveys in all of the tobacco areas. Special standard forms for recording data have been distributed and pathologists in the tobacco states will be making detailed inspections as the time for obtaining the maximum amount of information is reached.

As the results come in, it is planned to publish summaries or abstracts in the Reporter and at the close of the work to bring together all reports in the form of a special summary. The first report of seed bed inspection has naturally been received from Florida, the state where the crop is the earliest, and is included in this number as the next item.

R. J. Haskell.

FLORIDA TOBACCO SEED BEDS IN GOOD CONDITION

Flue-cured

The first inspection work was begun on March 19. It was planned to spend that day in the cigarette or flue-cured district in Hamilton and Suwannee Counties. However, on account of heavy rains throughout the day only three beds were inspected. These beds represented a total of only 18,300 square feet. Two of the beds were located on new land and the other was on land used for seed bed in 1929. No disease was observed on any of the beds.

Cigar wrapper

Fourteen beds of cigar wrapper tobacco were inspected, comprising a total of 407,730 square feet. Five of these beds were located in Madison County and comprised a total of 184,630 square feet of space. The other nine were located in Gadsden County and comprised a total of 223,100 square feet. Nine of the 14 beds were located on new land and the land was "burned". The beds on new land comprised a total of 225,000 square feet. Three of the five beds on old land were "burned" and the other two were steamed. The ones "burned" comprised a total of 57,850 square feet and the ones steamed comprised 124,750 square feet of space.

Most all of the beds were covered with new cloth (tobacco shade) and were kept tight. Most all of the seed were grown locally and had been cleaned but not treated. With the exception of two or three beds, part of the plants were ready for transplanting, and plants had already been pulled from a few beds.

No disease was observed in any of the beds. Furthermore, no disease has been reported to the station by growers whose beds were not inspected on this trip. Flea beetles were observed in one bed, white grubs in one, and mole crickets were observed in all beds in Madison County.

Aside from irregular growth and uneven stand on a few beds caused by heavy rains soon after the seed were sown, all beds appeared to be in better condition than usual. W. B. Tisdale, April 18)

DISEASES OF VEGETABLES

NAILHEAD SPOT ON MEXICAN TOMATOES

"Nailhead spot has been especially prominent on Mexican tomatoes during the present shipping season. Most of the spots have been flat, tan to light brown, and irregular in outline. Our transit experiments with Florida stock shows that this type of spot develops during transit, and that it is possible for such spots to reach a diameter of one-eighth inch within ten days.

"One interesting feature of nailhead spot on Mexican stock is that it does not always remain in the blemish stage, as is usual in Florida tomatoes. It will be noted that in ripe tomatoes the typical nailhead spot shows in the center of the lesion, but surrounding this there is evident decay which may involve an area varying from one-fourth to one-half inch in diameter. This decay is generally caused by one of two organisms, Alternaria or Cladosporium." (G. B. Ramsey, April 25, 1930)

DISEASES OF TREES AND ORNAMENTALS

MORE WILLOW SCAB OCCURRENCES

N. O. Howard has supplied the following list of localities in which willow scab (Fusicladium saliciperdum) specimens were collected during the summer of 1929 by him and Messrs. McKenzie, Moses, Baker, and True.

Maine

Hancock County - Amherst, Dedham, Ellsworth Falls, North Bucksport, vicinity of North Penobscot.
Lincoln County - Bristol, Jefferson, Christmas Cove.
Kennebec County - China, Rome.
Washington County - Eastport.
Waldo County - Lincolnville, Winterport, Monroe.
Penobscot County - South Orrington.
Knox County - Warren.
Sagadahoc County - Woolwich.

Vermont

Orange County - North Brookfield.

Massachusetts

Essex County - Newbury.
Berkshire County - Richmond.

New York

Herkimer County - Cedarville, Ilion, Middleville.
Fulton County - Johnstown.
Oneida County - Oriskany Falls, Sylvan Beach, Westernville.
Dutchess County - Pauling.
Sullivan County - Ten Mile River.

GRAY BULB ROT OF TULIP - MASSACHUSETTS

On February 26, I received some diseased tulip bulbs and plants that were being forced in a greenhouse. They were mailed from Jamaica Plain, with a statement that the disease was causing heavy loss. Both the symptoms and the fungus corresponded in every way with those of the disease described on that plant by Whetzel and Arthur. Rhizoctonia sclerotia and mycelium were plentiful. The flower and leaves were affected as well as the bulb scales. This seems to be the first report of this tulip trouble from the state. The bulbs were imported from Holland. (O. C. Boyd)

SPECIMENS

The following are some of the specimens that have recently been received. All reports that are at all unusual for any state such as new occurrences, new hosts, or new diseases, should by all means be substantiated by adequate specimens. In the Survey files there are many reports of occurrence that are not backed up by specimens or photographs. Many of these cannot be accepted as definitely authentic unless the reporter has a specimen that can be examined preferably on file at Washington. There is no disputing a specimen, but there are often good reasons for doubting unsubstantiated reports. R. J. Haskell.

Tobacco leaf spot: G. M. Armstrong sent in from several points in South Carolina specimens of tobacco showing leaf spots on which was a fungus answering fairly well, although not exactly, to the description given for Phyllosticta nicotiana E. & E. This leaf spot has been described and the pathogenicity of the fungus proved by Wolf (Phytopath. 12: 99-100. 1922) from North Carolina. Wolf's specimen seems to be the only one in the herbarium here. You are asked to watch for this leaf spot and to send in any good specimens that may be collected.

Strawberry mosaic: Strawberry plants affected with a trouble resembling a mosaic disease were received from H. L. Fackler of Knoxville, Tennessee, in response to a request for such material published in a recent number of the Reporter, (Vol. 14: 67. April 15).

Double blossom (supposed to be caused by Fusisporium rubi (Wint.) of wild blackberry: Vicinity of Washington, D. C., collected by C. A. Ludwig, April 22.

Rust (Gymnoconia interstitialis) of wild dewberry: Washington, D. C., collected by C. A. Ludwig, April 20.

Fasciation or crown gall (Bacterium tumefaciens) of sweet pea: Tottenville, Long Island, January 30. Determined by Miss N. A. Brown.

Heart rot (Polystictus hirsutus (Wulf.) Fr. of Juglans regia: Hood River, Oregon, collected by J. S. Cooley, April 1930, determined by J. A. Stevenson.

Thielaviopsis paradoxa (De Seynes) Hohn. and Torula sp.: cultures isolated from a decaying palm bud, Riverside, California, L. J. Klotz, March 24. Determined by J. A. Stevenson.

Sclerotium delphinii causing root rot of Delphinium sp. (perennial larkspur): St. Louis, Missouri, H. von Schrenk, October 18, 1929. Determined by Freeman Weiss.

Uromyces primaverilis Speg. (U. nothoscordi Syd.) on Nothoscordum bivalve: Bexton County, Texas, W. F. Malley, March. Determined by R. W. Davidson.

Uromyces bicolor Ellis on Allium canadense: College Station, Texas, J. J. Taubenhaus, March 10. Determined by R. W. Davidson.

PLANT QUARANTINE NOTES

RECENT INTERCEPTIONS

The following are some of the more interesting and perhaps significant interceptions of plant pathogens from foreign countries that have been made since March 1, 1930. Samples of the diseased plants are sent to Washington for determination. Through the courtesy of Mr. H. S. Dean of the Quarantine and Control Administration, the Plant Disease Survey is now receiving copies of the identification slips.

1. Puccinia sp. on leaves, and Uromyces sp. on stems, of a grass from Italy used for packing containers of olive oil. New York City, March 7.

2. Tylenchus dipsaci on potato from Belgium (in stores) intercepted at Charleston, South Carolina, March 7. Reported by Office of Nematology, where specimen was examined, as severe infestation. This strain of nematode attacks potatoes in Europe but is not known to occur in this country. The appearance of affected tubers was somewhat similar to late blight rot.

3. Phomopsis citri on oranges from Haiti. Philadelphia, March 31.

4. Fusarium sp. apparently causing a dry rot of ginger from China. New York City, March 15.

5. Spongospora subterranea causing powdery scab on potato from England (in stores). Philadelphia, March 28.

6. Oospora pustulans, skin spot of potato from England. New York City, March 31.

7. Glomerella cingulata (trace) on avocado (in stores) from Brazil. Philadelphia, March 22.

8. Phoma citricarpa, black spot of orange, from Japan (in stores) Seattle, Washington, March 27.

9. Fusicladium eriobotryae on loquat from Italy. New York City, April 10. Twenty-four loquats were found all of which were infected. The scab was followed in many cases by brown rot apparently caused by a Sclerotinia.

10. Diplodia tubericola on sweet potatoes from Brazil (in stores). Philadelphia, March 14.

11. Alternaria sp., Penicillium digitatum, and P. italicum on lemons from Italy. New Orleans, March 12.

12. Uromyces appendiculatus on string beans from Sonora, Mexico. Nogales, Arizona, March 6.

Same fungus on string beans and leaves from Cuba. New York City, March 24.

13. Phomopsis vexans on eggplants from Cuba. New York City, March 25.

14. Macrosporium tomato causing nailhead spot on tomato from Mexico via Canada. Detroit, Michigan, April.

15. Diplodia tubericola causing Java black rot on sweet potato from Santo Domingo (in stores) Charleston, South Carolina, April 8.

16. Phoma destructiva on tomato from Bahama Islands. New York City, April 9.

17. Alternaria citri on oranges from Sonora, Mexico. Nogales, Arizona, March 23.

18. Venturia inaequalis on apples in five different shipments as follows: From Chile (in stores) Charleston, South Carolina, April 7, 50 per cent infection. From Hungary (in mail), Philadelphia, March 29. From France (in stores), New Orleans, March 11. From Italy (in cargo), New York City, March 6, 10 per cent infection. From Denmark (in mail), Detroit, Michigan, March 8.